ABSTRACT OF THE DISCLOSURE

A method for combining a random set of video features non-linearly to evaluate perceptual quality of video sequences includes (a) receiving a video sequence for image quality evaluation; (b) providing an objective metric image quality controller comprising a random set of metrics ranging from M_1 to M_n without dependency information for each one metric; (c) applying each one metric individually to the video sequence to provide an individual objective scoring value of the video sequence ranging from x_1 to x_n;

(d) determining a plurality of sets of weights (w_1 to w_n) which correlate to predetermined subjective evaluations of image quality for a predetermined plurality of video sequences (n), each one set of weights being assigned a range having an incremental value equal to the range divided by a number of combinations for each one set of weights; (e) weighting each individual objective scoring value x_1 to x_n provided by each one metric of the random set of metrics in step (c); (f) combining metrics of the weighted individual objective scoring value of the random set of metrics into a single objective evaluation F, wherein each weighted individual scoring value from step (e) is multiplied by each individual objective scoring value x_1 to x_n from step (c); (g) calculating a correlation factor R to provide a correlation value for the objective evaluation F and the plurality of video sequences (n). Steps (e), (f) and (g) are repeated to provide a plurality of correlation factors which are ranked. A heuristic search uses a genetic algorithm to find the best set of weights to provide objective scores closest to predetermined subjective evaluations. A system provides the hardware and modules that perform the non-linear combination of metrics to provide enhanced perceptual image information.

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